

REMARKS

Claims 26-63 are pending in the application. Claim 26, 29, 39, 40, 43, 48, and 61 have been amended herein for consistency and to better describe certain aspects of the invention. Claims 62 and 63 have been added. Favorable reconsideration in light of the amendments and the remarks which follow is respectfully requested.

The Amendments

Independent claim 26 has been amended to describe the capability of CONTROLLABLY producing an aqueous solution of chlorine dioxide.

Independent claim 61 has been amended to alter the transition language.

The Indefiniteness Rejection

Claims 43 and 48 have been rejected under 35 U.S.C. § 112, second paragraph for lacking antecedent basis for the word "uncoated". Claims 43 and 48 have been amended to address the antecedent basis issues without changing the scope thereof.

Claims 29, 39, and 40 have been amended to correct typographical errors.

The Obviousness Rejection

Claims 26-61 have been rejected under 35 U.S.C. § 103(a) over EP 0 581 550 (EP'550) in view of either CN 1,104,610 (CN'610) or CA 959,238 (CA'238). EP'550 relates to a solid composition of a chlorite salt, a chlorine releasing agent, and a proton donor admixed together under anhydrous conditions. The admixture is then dissolved in water to quickly and immediately produce chlorine dioxide.

CN'610 relates to a non-woven cloth bag containing 1) microcapsules of wax, stearic acid and sodium chlorate and 2) solid acidifier particles. The bag then produces chlorine dioxide when placed in water. Microcapsulating the sodium chlorate in wax enables the direct mixing with the solid acidifier particles without easily reacting. CN'610 teaches at page 3 that direct mixing of sodium chlorate and solid acidifier particles immediately produces chlorine dioxide.

CA'258 relates to producing chlorine dioxide by immersing in water a receptacle of an alkali or alkaline earth metal chlorite and acid. The receptacle is a water soluble envelope, and the alkali/alkaline earth metal chlorite and acid are SEPARATELY wrapped. See page 4, line 5 of CA'258. That is, the alkali/alkaline earth metal chlorite and acid are in contact with each other in the package.

Claims 26-63 Generally

The Examiner contends that it would have been obvious to use a water soluble material (of either CN'610 or CA'238) to form an envelope for the chlorine generating composition (of EP'550). Applicants respectfully disagree.

While EP'550 describes a composition of a chlorite salt, a chlorine releasing agent, and a proton donor, EP'550 fails to discuss storing the admixture in any type of container. EP'550 also fails to discuss storage time for the admixture. This is because EP'550 uses the composition IMMEDIATELY after it is made. This is clear from the examples, it is clear from the mandate to admix the ingredients under anhydrous conditions, and more importantly, one skilled in the art would understand that EP'550 describes making a chlorine dioxide generating composition for on-site use. EP'550 states at page 2, line 17 that there are dangers associated with storage of chlorine dioxide, and at page 2, line 27 that there is need for a storable composition that can generate chlorine dioxide. However, EP'550 NEVER describes a storable composition.

In this context, Applicants respectfully request the Examiner to specifically identify by page and line number the passage of EP'550 where a storable chlorine dioxide generating composition is described. This cannot be done, because EP'550 fails to make this disclosure. EP'550 fails to teach or suggest metal chlorite and an acid forming component together where they do react with each other in the presence of water but not in the substantial absence of water to produce chlorine dioxide. Consequently, there is no teaching or suggestion to package or store the chlorine dioxide generating composition in EP'550.

Both CN'610 or CA'238 describe a chlorine dioxide generating composition in a package. However, the package of CA'238 contains SEPARATE compartments for the alkali/alkaline earth metal chlorite and the acid. As a result, the disclosure in CA'238 would NOT have motivated one skilled in the art to package and store the chlorine dioxide generating composition of EP'550 because the chlorite salt and the proton donor of EP'550 are NOT SEPARATED. The condition necessary to use the package of CA'238 is the SEPARATION of reactive components. Since this condition is not met by EP'550, one skilled in the art would NOT have applied its teachings.

And even if one skilled in the art would combine the teachings of EP'550 and CA'238, the skilled artisan would have separated the chlorite salt and the proton donor of EP'550 into separate compartments of the package of CA'238, because this separation is the explicit teaching of CA'238.

CN'610 teaches that packaging a chlorine dioxide generating composition is possible IF the metal chlorate is protected with a wax coating. CN'610 specifically teaches against direct contact between sodium chlorate and an acidifier on page 3. The condition necessary to use the package of CN'610 is the wax coating formed on the sodium chlorate. Since the chlorite salt of EP'550 is not protected by a wax coating, one skilled in the art would NOT have used the package of CN'610 for the chlorine dioxide generating composition of EP'550.

The primary purpose and teaching of EP'550 is the quick and immediate production of chlorine dioxide in water. Placing the chlorine dioxide generating components of EP'550 in a package would IMPEDE the quick and immediate production of chlorine dioxide. That is, combining the cited art in the manner proposed by the Examiner by packaging the chlorine dioxide generating components of EP'550 would FRUSTRATE and thereby undermine the primary teaching of EP'550. One skilled in the art would not IGNORE the primary teaching of EP'550 and impede the quick and immediate production of chlorine dioxide in water.

For at least these reasons, EP'550 and CN'610 or CA'238 cannot render claim 26 obvious. Withdrawal of the rejection of claims 26-60 is therefore respectfully requested.

Specific Claims

In addition to the general comments provided above, numerous other specific reasons further the patentability of particular claims. These specific reasons are provided below.

Claims 43 and 48

With specific regard to claims 43 and 48, it is noted that the metal chlorite of the claims is uncoated. Since CN'610 teaches that packaging a chlorine dioxide generating composition is possible IF the metal chlorate is protected with a wax coating, this cited art runs directly contrary to claims 43 and 48. The separate compartment for the alkali/alkaline earth metal chlorite of CA'238 preventing physical contact with the acid also functions as a coating on the alkali/alkaline earth metal chlorite. Since both CN'610 and CA'238 clearly teach AWAY from directly contacting a metal chlorite with acid in a package, one skilled in the art would not have been motivated by CN'610 and/or CA'238 to package the components of EP'550 because the metal chlorite of EP'550 is in DIRECT contact with the proton donor.

Claims 57-59

With specific regard to claims 57-59, it is noted that a large sized agglomerate is required. The large sized agglomerate contributes to the advantageous controlled release properties of the claimed device. In other words, the large sized agglomerates SLOW the reaction between the metal chlorite and the acid forming component so that chlorine dioxide is generated gradually over time, not all at once immediately upon immersion in water. The primary purpose and teaching of EP'550 is the quick and immediate production of chlorine dioxide in water. EP'550 fails to teach or suggest any

size for its chlorine dioxide generating components. Since the purpose of EP'550 CANNOT be achieved when large sized agglomerates are employed to generate chlorine dioxide, claims 57-59 are novel and non-obvious for this additional reason.

Claim 61

With specific regard to claim 61, it is noted that the transitional phrase "consisting of" is employed define the scope of the device contents. The language "consisting of" excludes the extra components in the theoretical bagged chlorine dioxide generating composition of EP'550, CN'610, and CA'238. The chlorine dioxide generating composition of EP'550 contains a chlorine releasing agent, such as trichloro isocyanurate or dichloro isocyanurate. Moreover, one skilled in the art would not have been motivated by any of EP'550, CN'610, and CA'238 to make the device of claim 61. Claim 61 is patentable for this additional reason. Therefore, withdrawal of the rejection of claim 61 is respectfully requested.

Claim 62

With specific regard to claim 63, none of the cited art teaches or suggests making a chlorine dioxide generating device capable of producing an aqueous solution comprising from about 0.5 ppm to about 200 ppm chlorine dioxide. Claim 62 is patentable for this additional reason.

Claim 63

With specific regard to claim 63, it is noted that the acid forming component is selected from synthetic molecular sieves, acid ion exchange resins, acid treated clays and acid treated calcined clays. EP'550, CN'610, and CA'238 all fail to teach or suggest using any of synthetic molecular sieves, acid ion exchange resins, acid treated clays and acid treated calcined clays as an acid forming component in a chlorine dioxide generating device.

Petition for Extension of Time

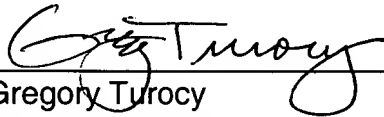
A petition and request for a three month extension of time is hereby made. A Credit Card charge form is enclosed herewith to pay the petition fees.

Should the Examiner believe that a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

In the event any fees are due in connection with the filing of this document, the Commissioner is authorized to charge those fees to our Deposit Account No. 50-1063.

Respectfully submitted,

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